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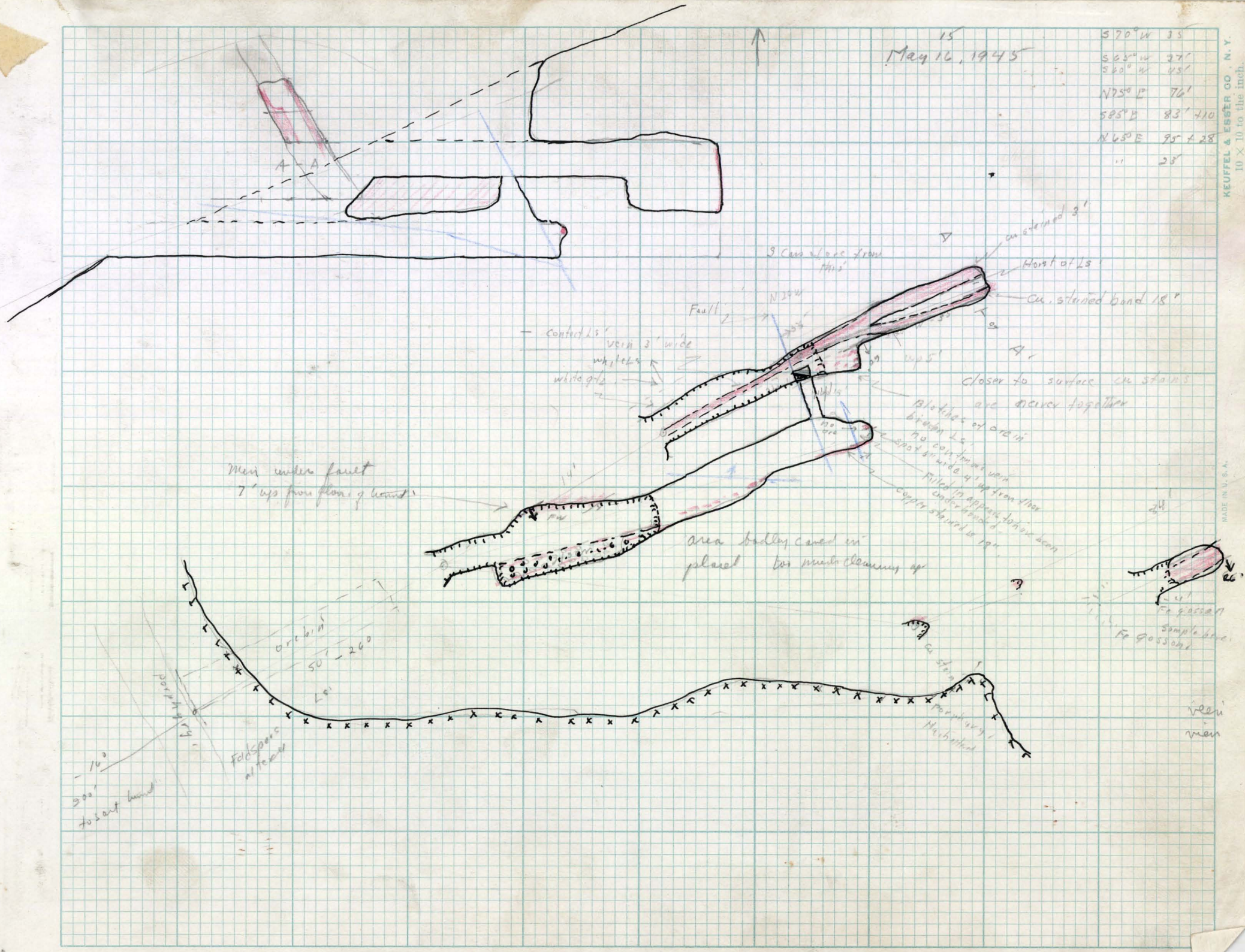
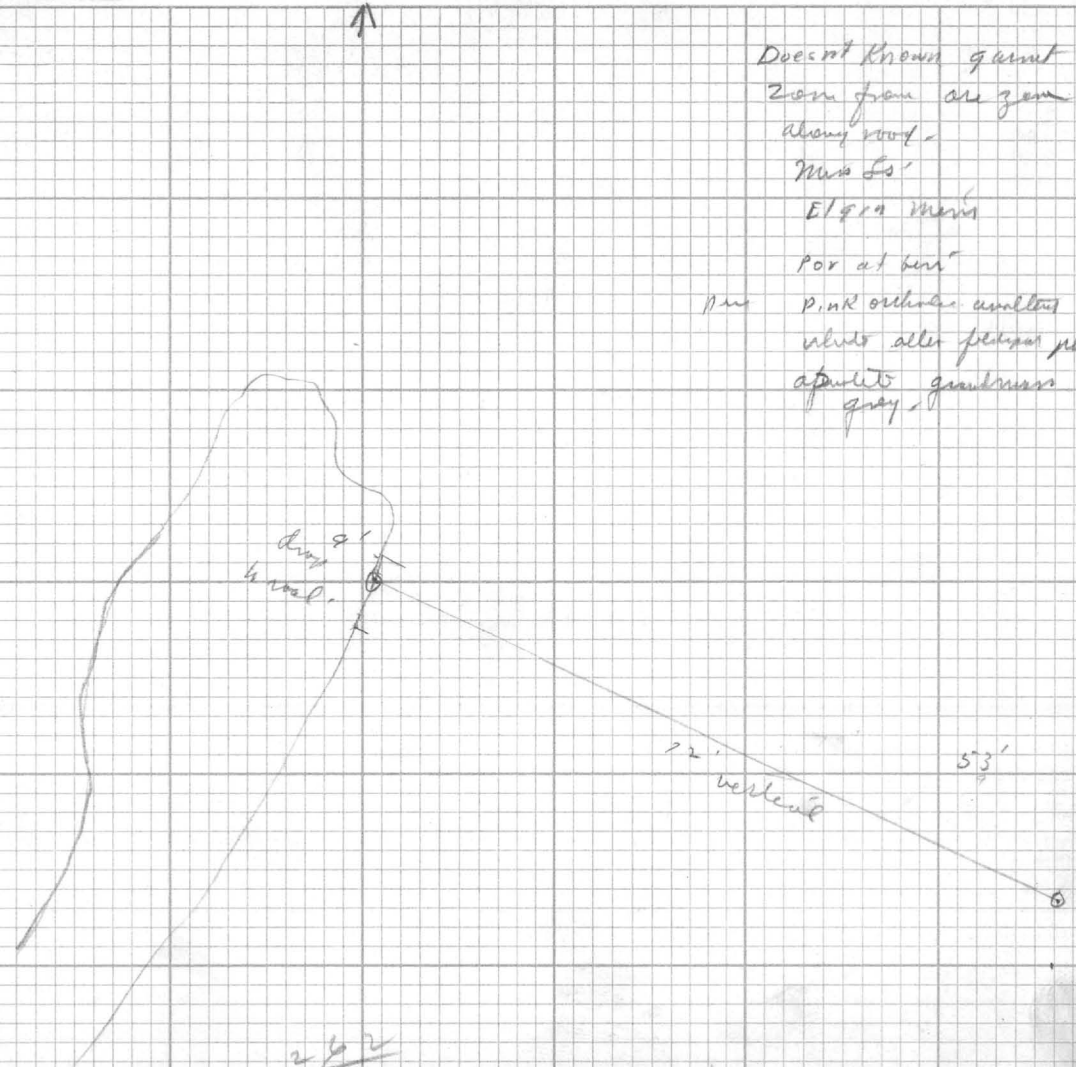

15
May 16, 1945
S70° W 33
S65° W 27'
S60° W 45'
N75° E 76'
S85° E 83' +10
N65° E 95 + 28
" 23'
A - A
Cu. stained 3'
Horst of Ls
Cu. stained band 18"
3 Cu. ore from this
Fault
Contact Ls
vein 3' wide
whites
white qtz
Closer to surface Cu stains are never together
Blocks of ore in broken Ls
no continuous vein
Filled in appears to have been under head of copper stained ls
Men under fault
7' up from floor of hoist
area badly caved in
placed too much cleaning up
Fe gossan
Sample here
Fe gossan
orebodies
50' - 260°
Feldspars altered
10°
900'
to sort hoist
Hanging wall
Footwall
Fe stain
Hanging wall
Hole bottom
vein
vein

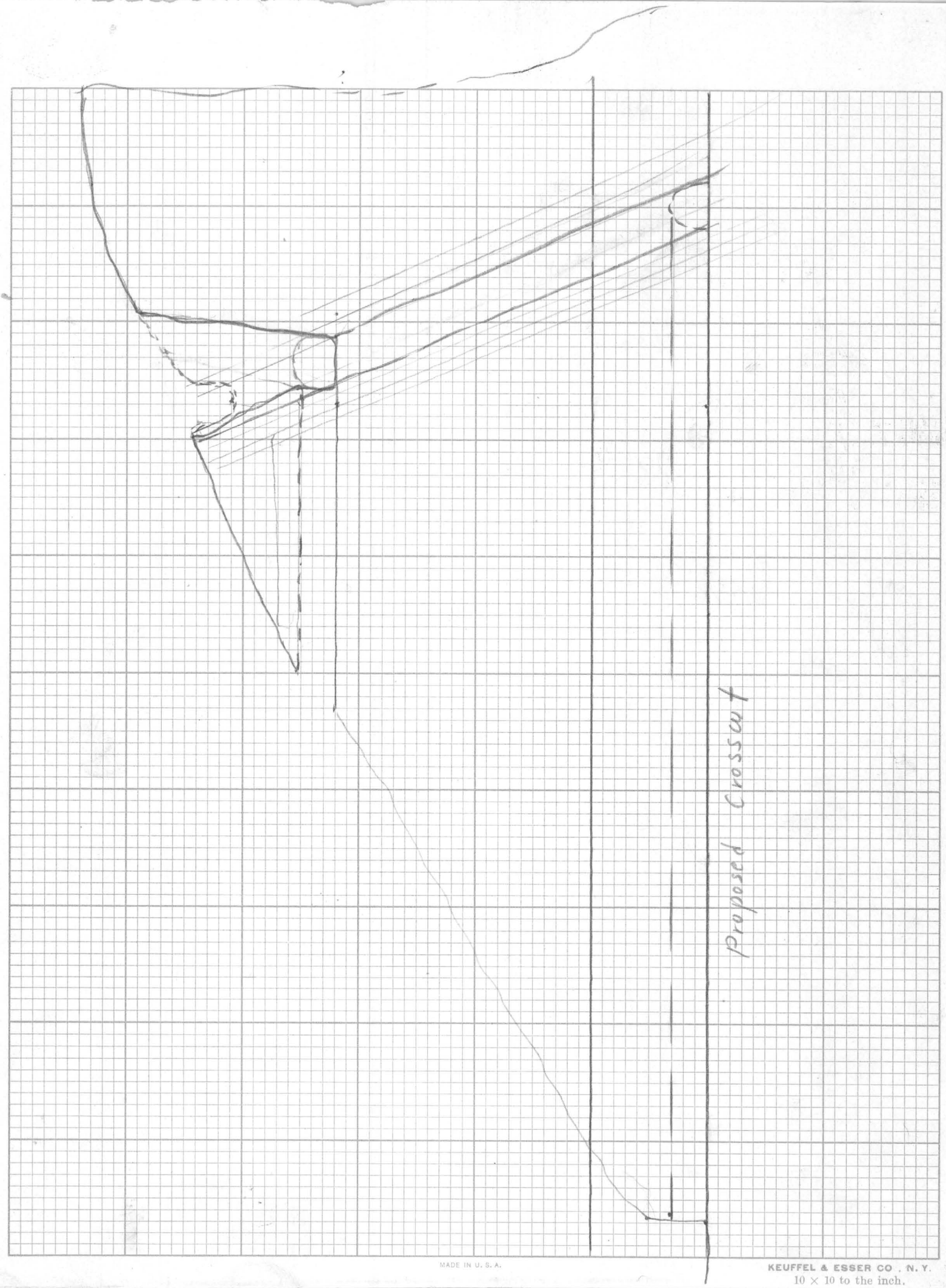
Fault
Seam
Moon
Mirabelle
on strike
on wall of
stope
against
compartment
Mineral
white
Silica/quartz
Calcite
N 20°
N 70°
N 45°
N 60°
N 70°
N 20°
N 45°
N 60°
N 70°
N 20°
N 45°
N 60°
N 70°
N 20

Doesn't known garnet
zone from ore zone
along roof.
Mus Lo'
Elgra Mesa
Por at Sent
pm p, nR orthoclase aventurine
include albite feldspar plus
apatite, graphite
gray.



$$\begin{array}{r} 262 \\ 20\overline{)5250} \\ 40 \\ \hline 125 \\ 120 \\ \hline 50 \end{array}$$

KEUFFEL & ESSER CO. N.Y.
10 × 10 to the inch.
MADE IN U.S.A.



MADE IN U. S. A.
KEUFFEL & ESSER CO. N. Y.
10 × 10 to the inch.

XXXXXXXXXXXXXXXXXXXX
325 Heard Building
Phoenix, Arizona
May 23, 1945

TULLY - Asst. Chief - Mining Section, RFC - Washington 25, DC

Re: Andrew Macfarlane - Docket No. ND-6076

I enclose the original and duplicate copies of my report covering recent examination of applicant's application for a $10,000.00 loan. Included is applicant's duplicate application with the following supporting data not originally included with application:

Two copies of lease agreement between applicant and lessor.
Twenty-two settlement sheets covering North vein.
Seven settlement sheets covering South vein.
Copy of letter from Brent N. Rickard to Messrs. Monis and Malott.
Copy of letter from Andrew Macfarlane to American Smelting and Refining Co.

CHARLES A. RASOR
Supervising Engineer

CAR:gmk

Enc:
2c - Report of Sup. Engr.
w/ supporting data

RECONSTRUCTION FINANCE CORPORATION
MINING SECTION
REPORT OF SUPERVISING ENGINEER
****

Docket No: ND-6076
Date Authorization for Examination Received: May 12, 1945
Date of Examination: May 15 - 16, 1945
Date of Report: May 23, 1945

1. NAME AND ADDRESS OF APPLICANT:

Andrew Macfarlane
Box 506
Globe, Arizona

Correspondent: Same

2. CHARACTER OF PROJECT:

To drive 165 foot crosscut to vein, prepare ground for mining, and purchase some equipment.

3. LOCATION OF PROPERTY:

In Section 15, T. 18 S., R. 15 E., Helvetia Mining District, Pima County, Arizona, approximately 14 miles from Sahuarita, the nearest railroad station.

4. APPLICANT:

Applicant is an individual and at present field engineer for the Arizona Department of Mineral Resources. He will not be with the Department after July 1, 1945. Applicant is 68 years old. He has operated in Mexico and Arizona.

5. LOAN REQUESTED:

$10,000.00.

Recommended: $6,500.00.

6. DESCRIPTION OF PROJECT:

A. General Features:

1. All mine workings are confined within applicant's lease.

2. The project will comply with State Compensation or Safety-First Statutes.

3. There are no apparent legal discrepancies which are not covered.

4. No impeded right-of-way facilities.

5. No likelihood of surface or sub-surface trespass.

B. Existing Development:

1. Tunnel Mine

a. Description. The South Vein is opened by two surface cuts and adits about 15 feet vertically apart. They follow the mineralized

6. a. Description:(Cont)

bed which dips to the southeast. (Refer to map on south vein.) Applicant has allowed workings to cave somewhat, and since this work was separated from main part of project, it was suggested to applicant that this part be left out of consideration for part of the loan funds.

North vein on the Newman Claim is about 400 feet north of the south vein and is the more pronounced of the two. There is a large open cut 35 feet high and approximately 100 feet long. The open stope is entered by an open crosscut from side of hill.

b. Sampling and Assay Data:

Applicant has practically worked out all the ore available. However, at each end of the cut I was able to cut samples to indicate that mineralization was present.

Sample No. 1 was cut across the face of the short adit under the cut. Sulfides were noted in cutting the sample. Across 78 inches the sample assayed 2.0 ounces silver and 3.3% copper.

Sample No. 2 was taken at the opposite end of the cut across 60 inches of mineralization. It assayed 1.6 ounces silver and 2.2% copper.

Applicant has shipped 1,210 tons of copper ore from the cut. The following table lists the shipments and the average grade.

Table 1

Shipments from North Vein

Date	No.	Ag.	Cu.	Tons	Total Ounces Silver	Total Pounds Copper
1-13-44	D-1	1.21	2.73	58.472	70.8	3193
1-31-44	D-2	1.16	2.63	57.495	66.7	3024
2- -44	D-3	1.85	3.48	52.7075	97.5	3668
2-14-44	D-4	1.42	3.00	61.153	86.8	3669
2-28-44	D-5	1.56	3.30	60.177	93.9	3972
3-4-44	D-6	1.44	2.98	55.285	79.6	3295
3-13-44	D-7	1.37	3.03	54.3005	74.4	3291
5-12-44	3	1.22	2.64	55.6145	67.8	2936
5-29-44	4	1.10	2.49	54.5490	60.0	2717
6-12-44	5	1.22	2.72	58.3605	71.2	3175
6-22-44	6	1.32	2.80	54.945	72.5	3077
7-6-44	7	0.97	2.42	60.7365	58.9	2940
9-4-44	8	1.07	2.34	52.3410	56.0	2450
9-28-44	9	1.27	2.61	103.640	131.6	5410
9-28-44	10	1.11	2.10	49.7430	55.2	2089
10-16-44	11	0.89	2.09	55.5615	49.4	2322
11-6-44	12	0.97	1.88	49.8675	48.4	1875
12-4-44	13	0.89	2.02	50.4865	44.9	2040
12-26-44	14	1.07	2.32	53.8860	57.7	2500
4-9-45	1	0.72	1.65	50.5835	36.4	1679
5-4-45	3	1.39	2.67	60.2210	83.7	3216
				1210.1255	1463.4	62538

Average silver - 1.21 ounces
Average copper - 2.58%

6. c. Underground workings are accessible.

d. General Features of Deposit:

The Newman Claim lies north of the old town of Helvetia about 2,000 feet. All of this area has been mapped recently by a student at the University of Arizona and was submitted as part of his Doctorate thesis in 1941. Limestones of Permian age striking northeast and dipping to the southeast have been invaded and surrounded by an intrusion of granite porphyry.

The south vein occurs in an island of limestone which rests on the intrusive porphyry. Thus a 400 foot adit to get under the south vein would be in granite all the way and probably would show little mineralization.

The north vein is also in limestone that has been metamorphosed but is unlikely to be cut off by the intrusive granite within the depth cut by the proposed crosscut. The ore deposit occurs in the unaltered layers of limestone which, being softer than the layers nearer the porphyry contact, are more receptive to replacement. Chalcopyrite was noted in the face where Sample No. 1 was cut and represents the primary mineral. Oxidation has left an iron capping at the outcrop. Lower down malachite and azurite were the copper minerals.

The mineralized zone strikes N 40° E and dips about 65 degrees southeast. There are about 300 feet of outcrops but the mined area is only 100 feet long. The width of the mineralization is about seven feet.

It is apparent that the sulfide mineralization is spotty. The carbonate mineralization, on the other hand, seems fairly well distributed throughout the zone. Nevertheless, the deposit is marginal and to extract a profit will need careful mining and a close check on the costs.

C. Proposed Program:

1. Applicant submitted the following program:

Mine development, tunnels, 400 feet	$ 4,800.00
Mine plant, compressor and drills	1,500.00
Truck, trackage, ore chutes, etc.	2,500.00
Supervision and accounting	1,200.00
Total	$10,000.00

After examination of property it was considered that development of south vein could not be considered in application. Therefore, the following revision is submitted which is agreed upon by Mr. Macfarlane and your Supervising Engineer.

Mine development, 165 foot crosscut, $15.00 per ft.	$2475.00
Road cut and ore bin	750.00
Compressor and two drills	1500.00
1 ½ ton truck	1000.00
Supervision, insurance for two months	650.00
Miscellaneous and incidental expense	125.00
Total	$6500.00

6. 2. Expected capacity of operations:

a. Mining: 20 tons per day.

b. Drift development: 4 feet per day.

c. Crosscut development: 4 feet per day.

d. Local wage scale:
Miners: 87½ cents per hour.
Shovelers and sorters: 75 cents per hour.

D. Equipment:

1. Workable equipment on property:

None - equipment on property belongs to sub-lessees.

2. Mine equipment for purchase under project:

Compressor
Two drills
Hoses and pipe

3. Housing facilities:

None on property. Workmen live in Helvetia and surrounding country.

4. Other expenditures:

Truck, 1½ ton capacity.

E. Cost Estimations:

1. Lode deposit

a.	Mining	$4.50 per ton
b.	Drifting	$15.00 per foot
c.	Crosscutting	$15.00 per foot
d.	Haulage to railroad	$1.55 per ton
e.	Freight to Hayden	$1.44 per ton
f.	Smelter treatment	$2.51 per ton
g.	Royalties	$ .28 per ton
h.	Total Cost	$10.28

F. Ore Reserves:

There are no ore reserves developed at present, but under the proposed program there would be developed a stope 150 feet in length, 70 feet in depth and 7 feet in width. Tonnage would be

$$\frac{150 \times 70 \times 7}{14} = 5250 \text{ tons}$$

6. F. (Cont)

Using the ore shipped to the smelter as an indication of the grade that will be mined under the proposed development, we get the following figures:

Silver (weighted av.) 1.21 ozs. less .5 oz = .71 x $.69125 =	$ .49
Copper (weighted av.) 2.58% less .4% = 2.18% = 43.6 lbs x 95% = 41.42 x .0905 =	3.75
Gross Smelter Value	4.24
Smelter Treatment	2.51
Net Smelter Value	1.73
Freight -$1.40 - .04 tax	1.44
	.29
Less 10% royalty	.03
Net before hauling and mining	.26
Premiums 2.58% cu = 51.6 lbs. x 97% = 50.05 x 15¢ =	7.51
	$7.77
Less 10% royalty on A-premium 50.05 x 50¢ = 2.50	.25
	$7.52
Trucking $1.50 -.05 tax	1.55
Net before mining	$5.97
If applicant can mine for	4.50
Indicated profit is	$1.47

7. EMPLOYMENT:

A. No men employed on project by applicant.

Applicant has been leasing out property on overriding royalty.

B. Applicant expects to employ 5 men on project.

C. Applicant expects to operate one shift per day.

8. OBJECTIONS TO PROJECT:

A. Local or regional:

None

B. General Remarks on Advisability of Project:

The project is on the border line and it is questionable whether applicant can make a profit. The project could very easily be done for $3,000.00 if equipment was already owned by applicant or if applicant would contract the job of running the crosscut and not accept supervision payment.

9. TIME SCHEDULE:

A. To Complete Project:

Will take two months or less to drive 165 crosscut to ore body.

9. B. Length of Operating Season:

12 months.

C. To Repay Loan:

1 year, if successful.

10. ESTIMATED COST OF PROJECT:

A.	Total Development	$ 2,475.00
B.	Purchase of Equipment	2,500.00
C.	Construction	750.00
D.	Supervision and Insurance	650.00
E.	Contingencies	125.00
	Total	$ 6,500.00

11. NATURE AND SOURCE OF REVENUE:

A. If loan is repaid, funds will come from profit in mining low grade copper ore.

12. COMMENTS OF SUPERVISING ENGINEER:

Revision of applicant's program indicates that a crosscut 165 feet long is needed to undercut a stope that has yielded 1,210 tons of 2.58% copper and 1.21 ounces of silver. It is a low grade ore body and can be mined only with the maximum of premiums on copper. Analysis of the costs on ore of similar grade that might be developed, indicates that there is a net before mining costs of $5.97. Whether the applicant can keep his mining costs below that figure is questionable. Another feature that is distracting is theequipment costs to do such a small amount of work. If the applicant had his own equipment or would rent equipment for a few months or contract the development, the amount of the loan could be greatly lowered. It is doubtful whether the applicant would do this. A good man with his own equipment could undoubtedly do the job for $3,500.00, and the loan would be worth recommending. The property is surrounded by three other mines that are working on low grade copper ores and apparently doing all right. There were six trucks on the road hauling ore. It is also known that these other mines have lower costs due to larger tonnages extracted.

I believe there is sufficient evidence to recommend a loan, but it is doubtful that the loan will be repaid fully.

Charles A Rasor
CHARLES A. RASOR
Supervising Engineer

CAR:gmk

Attachments:
Assay Certificate
Maps

CLAUDE E. McLEAN
P. O. BOX 1888

ARIZONA TESTING LABORATORIES

ANALYTICAL AND CONSULTING CHEMISTS
ASSAYERS, MINING ENGINEERS
823 EAST VAN BUREN STREET

TELEPHONE 3-6272

ASSAY CERTIFICATE

PHOENIX, ARIZONA, May 18 1945

Mr. C. A. Rasor, Supervising Engineer, RFC

325 Heard Building, Phoenix, Arizona

WE HAVE ASSAYED THE SAMPLES RECEIVED FROM YOU AND FIND THE RESULTS AS FOLLOWS:

GOLD FIGURED AT $35.00 PER OUNCE.

LAB. FORM 2 SILVER FIGURED AT $0.70 PER OUNCE.

LAB. NO.	SAMPLE	GOLD		SILVER		PERCENTAGES			
		OZ. PER TON	VALUE	OZ. PER TON	VALUE	COPPER	LEAD		
56209	#1 Newman Mine	0.04	$1.40	2.00	$1.40	3.30%			
	78" cut across face								
56210	#2 Newman Mine	0.04	1.40	1.60	1.12	2.20%			
	60" cut face of cut								

REGISTERED ASSAYER
CERTIFICATE EXPIRES
CLAUDE E. McLEAN
DEC. 31, 19[illegible]
ARIZONA, U.S.A.

RESPECTFULLY SUBMITTED,

ARIZONA TESTING LABORATORIES

BY Claude E. McLean ASSAYER

CHARGES $4.00

N. Vein

				Flu	Ag	Cu	Pb	SiO2	Al2O3	Fe	CaO	Wet	Tons Dry	Ag	Cu	10% Royalty	Ag wetted	Shipper	Bonus	Royalty on Prem
3-13-44	D-7	238	.002	1.37	2.03	49.1	37.5	2.4	1.5	31.2	53.98	54.3005	744.4	3291	.07	11.75	27.46		
1-13-44	D-1	45	.003	1.21	2.73	52.9	35.5	1.2	10.0	28.7	57.9100	57.8720	70.8	3178	—	28.65	-63.15		
1-21-44	D-2	96	.005	1.16	2.43	50.6	36.9	1.4	11.6	29.7	58.4300	57.4950	66.7	3024	—	26.45	-65.85		
2-1	D-3	112	.003	1.25	3.48						54.17	52.7075	79.5	2668	5.32	18.45	27.47		
3-17-44	D4	144	.005	1.42	3.00	57.3	36.5	1.0	10.4	29.5	62.24	61.1520	90.8	3669	.06	14.68	-14.10		
2-25-44	D5	196	.003	1.08	3.30	57.9	38.1	2.0	11.0	30.4	63.33	60.1770	93.9	3872	2.03	16.23	8.23		
3-4 "	D6	208	.005	1.48	2.98	54.1	36.7	1.6	10.8	31.3	57.29	55.2850	79.6	3295	—	13.27	-13.40		
5-27 "	4	435	.003	1.10	2.47	53.6	37.8	2.6	7.3	29.7	55.10	54.5490	60.0	2717	—	22.37	-81.07		
5-12 "	3	417	.003	1.22	2.64	59.6	37.5	2.2	11.0	30.6	52.29	55.6145	67.8	2926	—	27.81	-68.26		
6-22 "	5	461	.003	1.22	2.72	58.0	35.2	2.6	8.4	27.0	58.75	58.3625	71.2	3175	3.05	29.10	-1.69		
6-22 "	6	478	.002	1.32	2.80	62.2	41.8	2.4	7.6	28.7	53.56	54.9450	72.5	3077	4.03	12.09	24.18		
7-6 "	7	504	—	.87	2.42	47.1	36.1	2.6	10.8	28.0	61.35	60.7345	58.9	2740	—	17.44	-30.17		
9-4 "	8	578	—	1.07	2.34	56.9	40.0	2.6	9.7	27.5	52.34	52.3910	56.0	2450	—	20.41	-45.48		
9-25 "	9	637	—	1.27	2.61	64.2	43.0	2.6	6.5	24.8	108.46	103.6400	131.6	5410	.78	20.73	-19.71		
9-25 "	10	638	—	1.11	2.10	73.5	46.0	2.0	2.4	30.0	52.08	47.7430	58.2	2089	—	20.89	-72.02		
10-14 "	11	662	—	.89	2.09	64.5	41.1	1.7	7.0	27.8	58.58	53.5015	49.4	2222	—	15.00	-59.26		
11-6 "	12	700	—	.97	1.88	61.5	41.2	2.1	8.0	28.7	51.73	47.8675	48.4	1875	—	15.76	-73.10		
12-4 "	13	737	—	.87	2.02	59.6	35.0	1.6	10.2	27.8	52.81	50.4865	44.9	2040	—	13.63	-62.01		
12-26 "	14	762	—	.97	2.22	57.3	35.8	2.4	9.7	28.8	52.17	53.8500	57.7	2500	—	21.02	-38.46		
4-7-45	1	152	—	.72	1.65	58.4	38.3	2.0	9.1	25.8	57.25	57.5535	26.4	1679	—	7.60	-71.11		
5-4 "	3	191	—	1.89	2.67	52.2	36.6	—	11.2	28.9	62.60	60.2210	92.7	3216	.08	19.45	12.24		
				1.21	2.584						1247.20	1210.1265	1463.4	62338	17.12	390.13	-694.28		
														60064				9099.30	10% of 30221.10 = 3022.21
												2 - vein							
2-28-44	1	181	.005	1.43	3.39	71.7	45.1	2.6	4.8	23.5	57.15	54.0125	77.2	3878	5.46	12.96	36.73		
3-4 "	2	207	.005	.87	2.86	70.4	44.3	3.0	6.2	27.5	51.48	49.0125	42.6	2504	—	12.74	-44.15		
3-21 "	3	264	.003	.69	2.09	73.7	44.3	4.1	4.8	26.1	51.24	50.1690	34.6	2047	—	6.52	-11.450		
9-25-43	1	620	.01	1.70	4.20	72.2	44.0	1.3	4.8	21.0	55.90	53.3285	90.6	4450	11.82	16.53	88.82		
11-4-43	2	772	.007	1.45	3.60	72.4	45.5	2.2	4.2	24.8	48.36	47.7775	69.3	3440	5.09	11.94	33.82		
1-19-44	1	30	.015	1.41	3.20	72.4	44.4	3.6	3.8	24.7	35.90	35.1100	49.5	2247	1.00	8.43	56		
4-23-45	2	173	—	.93	2.24	63.8	41.0	3.6	7.0	26.1	58.84	57.6663	53.6	2583	—	—	-30.67		
				1.20	2.074						357.58	370.1080	417.4	21477	23.87	69.12	-29.15		
														20815				31255.25	10% of 1091.75 = 109.18

Ag 1.21 - .5 oz = .71 X .69125 = .49

Cu 2.58 - .4% = .2.18 436 X 95% = 414.2 X .0905 = 3.75

	4.24
Smelter deductions	2.51
Net value	1.73
Premium 2.58% 51.6 X 97 = 50.05 X 15 Cents	7.51 Less prem
50.05 X 5 = 250 X 10% = 25 cents	
	1.03
Freight 1.40 + .04	1.44
	.29
Premium less 10% Royalty on A 7.51 - .25 =	7.26
	7.55
Trucking 1.50 + .05	1.55
	6.00
Tax 10% 22.9 cents	.3
	5.97

Ag 1.21 ounce less .5 oz = .71 X .69125 = .49

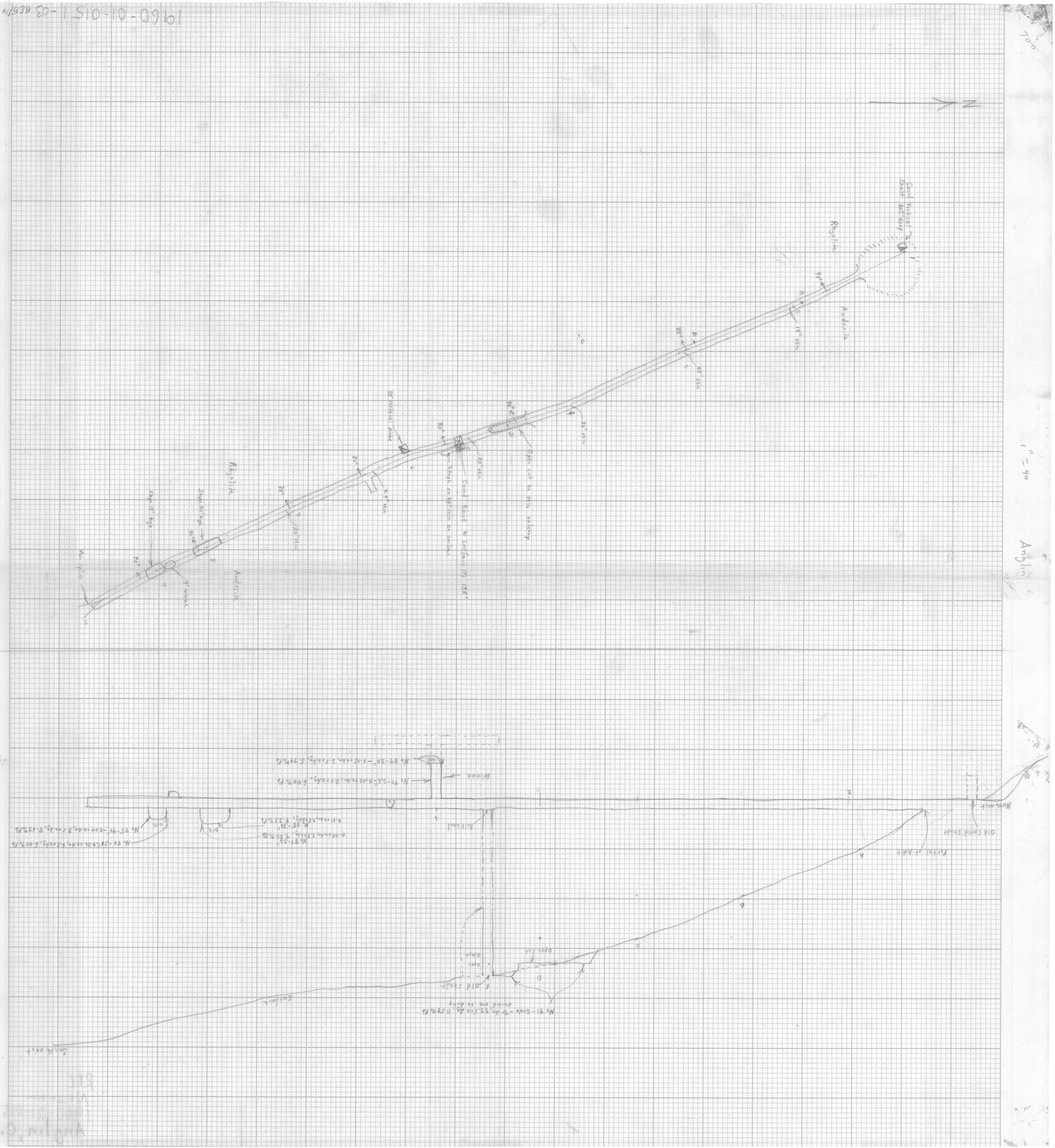
Cu 2.58 % less .4% = 2.18 = 436 lbs X 95% = 414.2 lbs X .0905 = 3.75

Smelter value	4.24
Smelter treatment	2.51
Net value	1.73
Freight 1.40 + .04 tax =	1.44
	.29
Less 10% Royalty	.03
Premium 2.58% = 51.6 X 97% = 50.05 X 15 cents = 7.51	.26
	7.51
	7.77
Less 10% Royalty on A Premium 50.05 X 5 = 250	.25
	7.52
Trucking 1.50 + .05 tax =	1.55
	5.97

For security and profit

1960-01-0151-04

BE 5/14



Northwest
Old Caved Shaft
Portal of Adit
A
B
C
D
E
Open Cut
No 91 - Grab - Tr Au, 38.5 oz Ag, 11.58% Pb
sorted ore in dump
Old Shaft
open
Stope
Surface
Southeast
Bulkhead
Winze
No 90-26" - 0.02 oz Au, 2.0 oz Ag, 6.90% Pb
No 89-30" - 0.05 oz Au, 2.5 oz Ag, 5.79% Pb
ore
No 87-36"
0.05 oz Au, 3.8 oz Ag, 9.86% Pb
No 88-36"
0.01 oz Au, 7.8 oz Ag, 8.33% Pb
ore
No 86-36" - 0.06 oz Au, 6.5 oz Ag, 6.40% Pb
No 85-40" - 0.04 oz Au, 8.5 oz Ag, 8.63% Pb

Caved Vertical Shaft 20±' deep
1
Andesite
Rhyolite
90°
A
2
18" vein
B
3
48" vein
85°
36" vein
4
Open cut on vein outcrop
D
90°
24" vein
5
Caved Raise to Surface (?) 135'
Stope on 24" vein on surface
80°
6
28' Vertical Winze
24" vein
80°
7
24" vein
85°
Rhyolite
Andesite
8
Stope 20' high
90°
4' winze
9
Stope 17' high
90°
10
Vein splits
N

Anglin

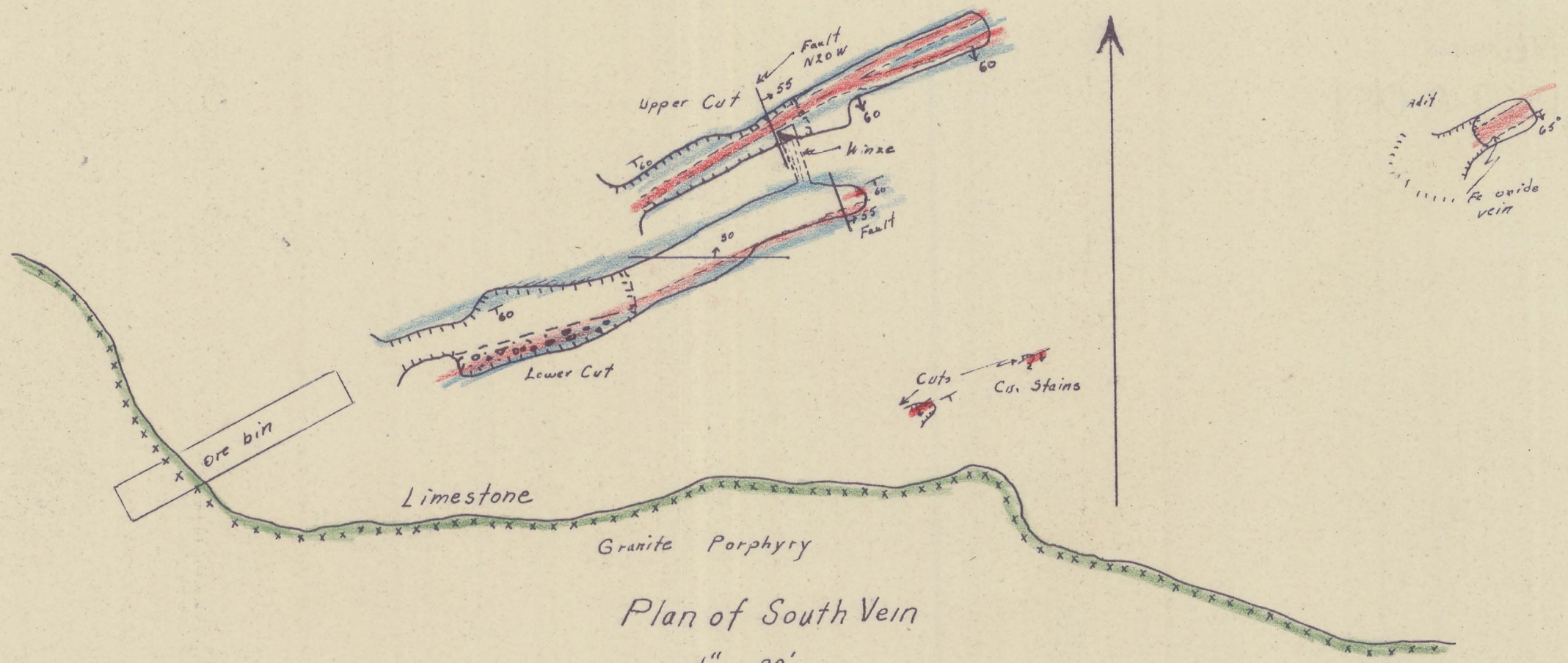
1" = 40'

1960-01-0151-03 BE5/14

KEUFFEL & ESSER CO.
NEW YORK

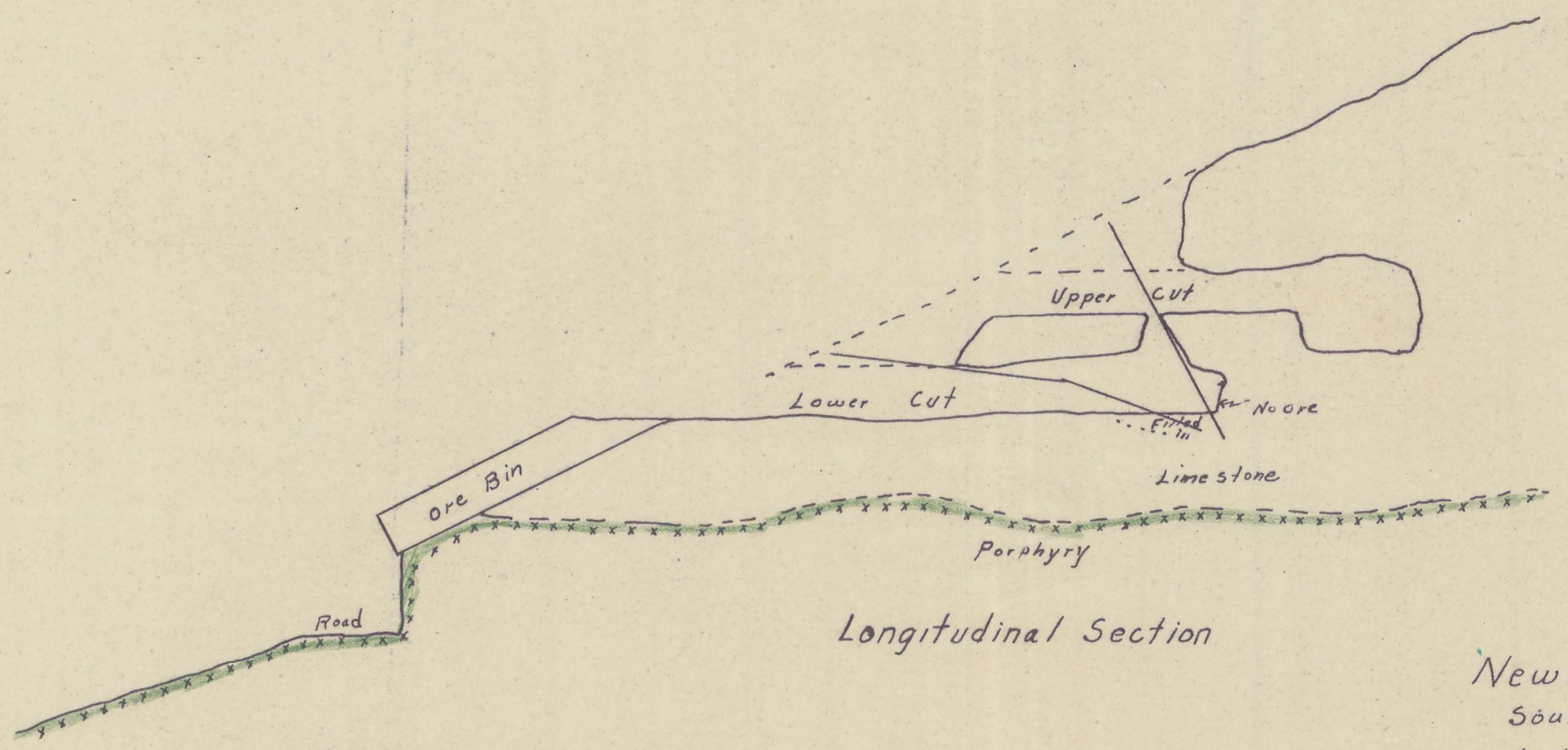
TRADE STANDARD MARK
CROSS SECTION 10 X 10

KEUFFEL & ESSER CO.
NEW YORK



Plan of South Vein

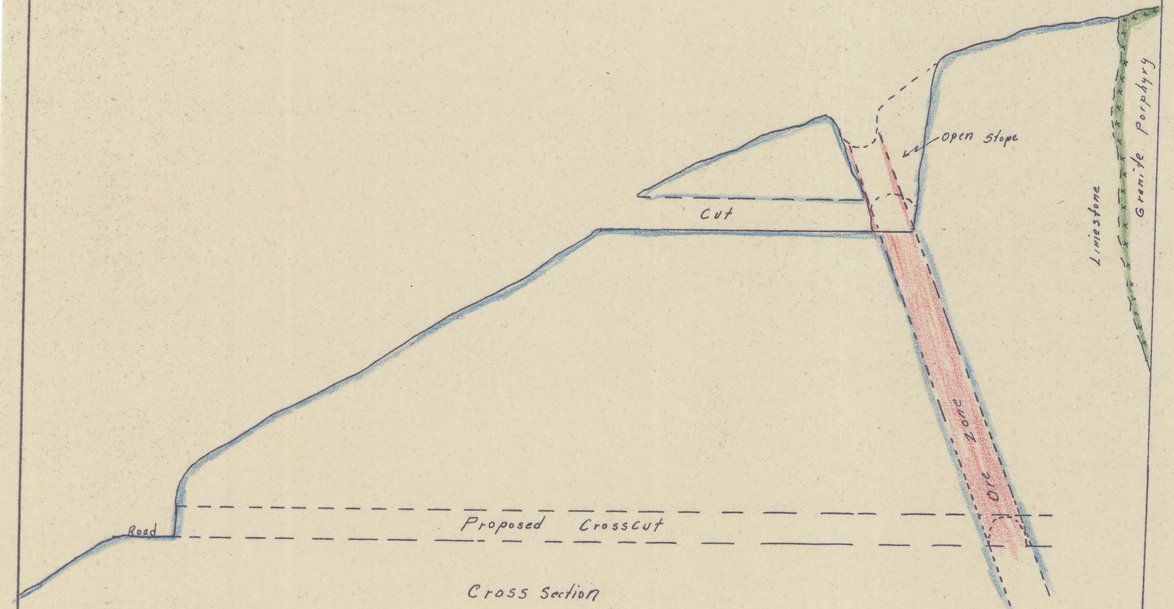
1" = 20'



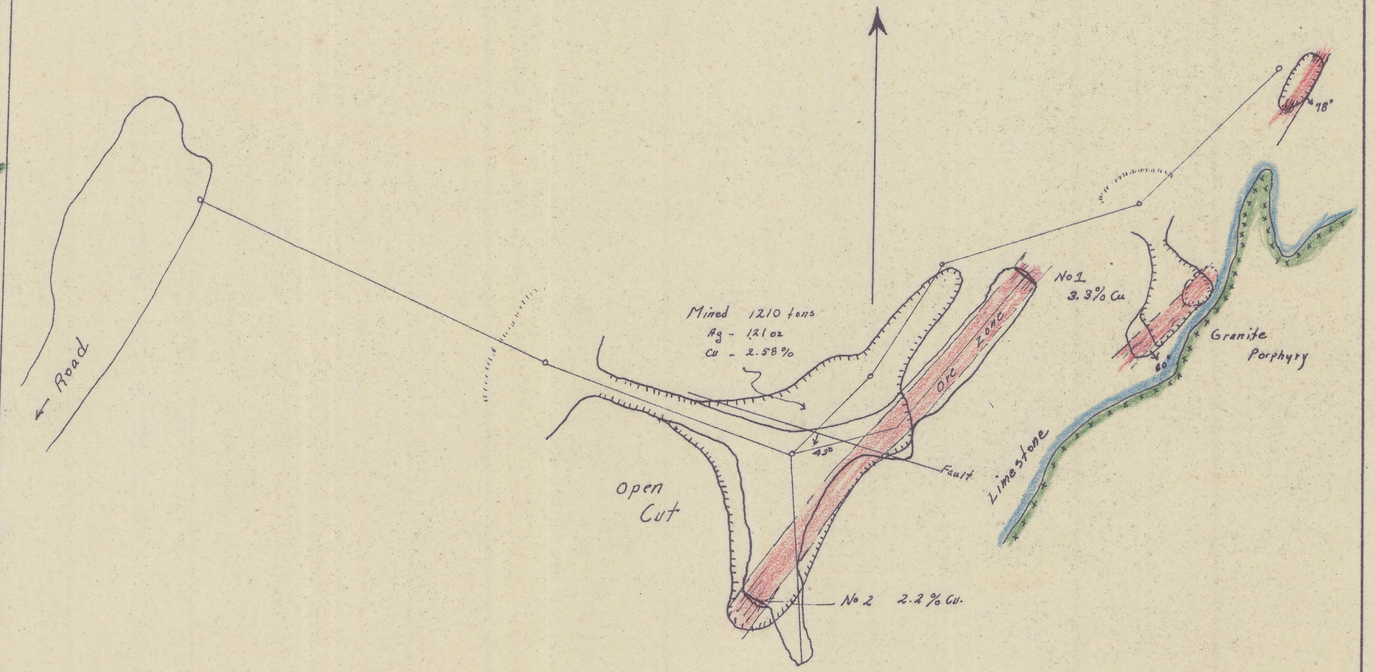
Longitudinal Section

Newman Claim
South Vein
Scale 1" = 20' May 15, 1945
Andrew Macfarlane ~~B-522~~ 6076
Charles a Rasor

1960-01-0151-02 5/14 BE



Cross Section
Scale 1" = 20'



Plan of North Vein
Newman Claim

Scale 1" = 20' May 15, 1945
Andrew Macfarlane ~~B-522~~ ND-6076
Charles A Razor

1960-01-0151-01 BE6/14